

CLAIMS

1. A method of assembly between:

- a blister sheet (2) having two plane main faces (6, 11) and comprising at least one product containment blister (8) projecting on a first (6) of said main faces, and

- a linerboard (3) having two plane main faces (12, 13) and comprising at least one hole (16) for the passage of said blister (8),

the blister sheet (2) and the linerboard (3) being capable of occupying a defined relative position, in which a first (13) of said main faces of the linerboard (3) is laid against the first main face (6) of the blister sheet (2), around the blister (8), and at least one of the first main faces (6, 13) being thermoadhesive or being made thermoadhesive,

said method comprising the succession of steps involving:

- a) placing the blister sheet (2) and the linerboard (3) in said defined relative position,

- b) applying to the blister sheet (2) and to the linerboard (3), which occupy said defined relative position, a pressure for the mutual clamping of their first

main faces (6, 13) and a treatment capable of making adhesive said first main face which is thermoadhesive or is made thermoadhesive, for the time necessary for bringing about a mutual thermoadhesion of said first main faces (6, 13),

c) causing the application of said pressure and said treatment to cease,

characterized in that steps b and c are carried out by causing a succession of individualized blister sheets (2) and of linerboards (3), placed in said defined relative position during step a, to travel jointly and continuously, said step a itself being carried out continuously, in a way known in principle.

2. Method as claimed in claim 1, the linerboard (3) comprising a flap (4) having a first main face (14) initially placed in the extension of the first main face (13) of the linerboard (3) and, in said defined relative position, occupying a turned-down position in which its said first main face (14) is laid against the second (11) of said main faces of the blister sheet (2), and at least the first main face (14) of the flap (4) or the second main face (11) of the blister sheet (2) being thermoadhesive or being made thermoadhesive,

characterized in that the flap (4) is placed in said turned-down position, during step a, after the first main faces (6, 13) of the linerboard (3) and of the blister sheet (2) have been laid against one another, and in that step b is carried out when the flap (4) occupies said turned-down position, in such a way that said mutual clamping pressure likewise forms a pressure for the mutual clamping of the first main face (14) of the flap (4) and of the second main face (11) of the blister sheet (2), and in such a way that said treatment likewise makes adhesive said main face of these main faces which is thermoadhesive or is made thermoadhesive, said time being selected in such a way that it is sufficient likewise in order to bring about a mutual thermoadhesion of the first main face (14) of the flap (4) and of the second main face (11) of the blister sheet (2).

3. The method as claimed in either one of claims 1 and 2, characterized in that the blister sheets (2) and the linerboards (3) are caused to travel along a curved path (42) during step b.

4. The method as claimed in any one of claims 1 to 3, characterized in that step b is carried out by a means

selected from the group comprising induction and thermal conduction.

5. The method as claimed in claim 4, characterized in that a plurality of electrodes (71) and a plurality of counterelectrodes (19) are circulated continuously in a respective closed circuit, said closed circuits comprising a common limited portion (42), along which the electrodes (71) and counterelectrodes (19) follow a common path (42), at the same time being matched in a defined relative position in which they offer a respective plane face (43, 113) toward one another, between an entrance, at which the electrodes (71) and counterelectrodes (19) approach one another, at the same time circulating along said respective closed circuit, and an exit, at which the electrodes (71) and counterelectrodes (19) move apart from one another, at the same time circulating along said respective closed circuit, and in that step b is carried out by introducing a blister sheet (2) and a linerboard (3), placed in their said defined relative position during step a, between a mutually corresponding electrode (71) and counterelectrode (19) at the entrance of said common path (42), and by causing the blister sheet (2) and the linerboard (3), placed in their said defined relative position, to execute

said common path between said mutually corresponding electrode (71) and counterelectrode (19), as far as the exit, at which the mutual spacing apart of said mutually corresponding electrode (71) and counterelectrode (19) carries out step c.

6. The method as claimed in claim 5, characterized in that one (43) of said plane faces has at least one cell (44) for receiving a blister (8), and in that step b is carried out so as to engage the blister (8) in said cell (44).

7. The method as claimed in either one of claims 5 and 6, characterized in that the counterelectrodes (71) are caused to execute, upstream of said common path (52), an upstream path (40) along which their said face (43) faces upward, and in that they are used, along this upstream path (40), as vehicles for a respective blister sheet (2) and respective linerboard (3) during the carrying out of step a.

8. The method as claimed in claim 7 in its relation of dependence on claim 6, characterized in that the counterelectrodes (19) are produced or selected in such a way that they have respectively said cell (44), and in that step a is carried out by successively depositing, flat,

- the linerboard (3) with the second (12) of its said main faces on said face (43) of a counterelectrode (19), said hole (16) being placed in register with said cell (44), and

- the blister sheet (2) with its first main face (6) on the first main face (13) of the linerboard (3), said blister (8) being engaged in said hole (16) and, through the latter, in said cell (44),

then, if appropriate, with the contingent flap (4) of the linerboard (3) being folded in order to bring it from its initial position into its turned-down position.

9. The method as claimed in any one of claims 5 to 8, characterized in that the counterelectrodes (19) are caused to execute, downstream of said common path (22), a downstream path (41) along which their said face (43) faces upward, and in that they are used, along this downstream path (41), as vehicles for a respective mutually assembled blister sheet (2) and a respective linerboard (3).

10. The method as claimed in any one of claims 5 to 9, characterized in that the closed circuit of the electrodes (71) is circular, and in that the closed circuit of the counterelectrodes (19) is in the form of an arc of a

circle coaxial to the closed circuit of the electrodes (71) along said common path (42).

11. A machine for assembly between:

- a blister sheet (2) having two plane main faces (6, 11) and comprising at least one product containment blister (8) projecting on a first (6) of said main faces, and

- a linerboard (3) having two plane main faces (12, 13) and comprising at least one hole (16) for the passage of said blister (8),

by means of the method as claimed in any one of claims 1 to 10,

the blister sheet (2) and the linerboard (3) being capable of occupying a defined relative position in which a first (13) of said main faces of the linerboard (3) is laid against the first main face (6) of the blister sheet (2), around the blister (8), and at least one of the first main faces (6, 13) being thermoadhesive or being made thermoadhesive,

said machine comprising means (51, 27, 63, 68, 69) for carrying out the succession of steps involving:

- a) placing the blister sheet (2) and the linerboard (3) in said defined relative position,

b) applying to the blister sheet (2) and to the linerboard (3), which occupy said defined relative position, a pressure for the mutual clamping of their first main faces (6, 13) and a treatment capable of making adhesive said first main face which is thermoadhesive or is made thermoadhesive, for the time necessary for bringing about a mutual thermoadhesion of said first main faces (6, 13),

c) causing the application of said pressure and said treatment to cease,

characterized in that the means (68) for carrying out steps b and c comprise means (21) for causing a succession of individualized blister sheets (2) and of linerboards (3), placed in said defined relative position during step a, to travel jointly and continuously, said step a itself being carried out by means (51, 57, 63) working continuously, in a way known in principle.

12. The machine as claimed in claim 11, the linerboard (3) comprising a flap (4) having a first main face (14) initially placed in the extension of the first main face (13) of the linerboard (3) and, in said defined relative position, occupying a turned-down position, in which its said first main face (14) is laid against the

second (11) of said main faces of the blister sheet (2), and at least the first main face (14) of the flap (4) or the second main face (11) of the blister sheet (2) being thermoadhesive or being made thermoadhesive,

characterized in that said machine comprises means (63) for placing the flap (4) in said turned-down position, during step a, after the first main faces (6, 13) of the linerboard (3) and of the blister sheet (2) have been laid against one another, and in that the means (68) for carrying out step b are capable of carrying out this step b when the flap (4) occupies said turned-down position, in such a way that said mutual clamping pressure likewise forms a pressure for the mutual clamping of the first main face (14) of the flap (4) and of the second main face (11) of the blister sheet (2), and in such a way that said treatment likewise makes adhesive said main face of these main faces which is thermoadhesive or is made thermoadhesive, said time being selected in such a way that it is sufficient likewise in order to bring about a mutual thermoadhesion of the first main face (14) of the flap (4) and of the second main face (11) of the blister sheet (2).

13. The machine as claimed in either one of claims 11 and 12, characterized in that the means (21) for causing

the blister sheets (2) and the linerboards (3) to travel jointly cause them to follow a curved path (42) during step b.

14. The machine as claimed in any one of claims 11 to 13, characterized in that the means (68) for carrying out step b comprise thermoadhesion means (68) selected from a group comprising the means of thermoadhesion by induction and the means of thermoadhesion by thermal conduction.

15. The machine as claimed in claim 14, characterized in that the thermoadhesion means (68) comprise means (21, 72, 73) for continuously circulating a plurality of electrodes (71) and a plurality of counterelectrodes (19) in a respective closed circuit, said closed circuits comprising a common limited portion (42) along which the electrodes (71) and counterelectrodes (19) follow a common path, being matched in a defined relative position in which they offer a respective plane face (43, 113) toward one another, between an entrance, at which the electrodes (71) and counterelectrodes (19) approach one another, circulating along said respective closed circuit, and an exit, at which the electrodes (71) and counterelectrodes (19) move apart from one another, circulating along said respective closed circuit, and in that the machine (20)

comprises means (40, 51, 57, 63) for introducing a blister sheet and a linerboard, which are placed in their said defined relative position, between a mutually corresponding electrode (71) and counterelectrode (19) at the entrance of said common path (42), and means (41) for releasing the mutually assembled blister sheet (2) and linerboard (3) from between said electrode (71) and said counterelectrode (19) at the exit of said common path (42).

16. The machine as claimed in claim 15, characterized in that one (43) of said plane faces has at least one cell (44) for receiving a blister (8), and in that the means (40, 51, 57, 63) for introducing a blister sheet and a linerboard, which are placed in their said defined relative position, between a mutually corresponding electrode (71) and counterelectrode (19) at the entrance of said common path (42) are capable of engaging the blister (8) in said cell (44).

17. The machine as claimed in either one of claims 15 and 16, characterized in that the circuit of the counterelectrodes (19) comprises, upstream of said common path (42), an upstream portion (40) along which said face (43) of the counterelectrodes (19) faces upward and along

which they form vehicles for a respective blister sheet (2) and linerboard (3) during the carrying out of step a.

18. The machine as claimed in claim 17 in its relation of dependence on claim 16, characterized in that the counterelectrodes (19) have respectively said cell (44), and in that the means (51, 57, 63) for carrying out step a comprise means (51, 67) for successively depositing, flat:

- the linerboard (3) with the second (12) of its said main faces on said face (43) of a counterelectrode (19), said hole (16) being placed in register with said cell (44), and

- the blister sheet (2) with its first main face (6) on the first main face (13) of the linerboard (3), said blister (8) being engaged in said hole (16) and, through the latter, in said cell (44),

and, if appropriate, means (63) for subsequently folding the contingent flap (4) of the linerboard (3) in order to bring it from its initial position into its turned-down position.

19. The machine as claimed in any one of claims 15 to 18, characterized in that the circuit of the counter-electrodes (19) comprises, downstream of said common path

(42), a downstream portion (41) along which said face (43) of the counterelectrodes (19) faces upward and along which they form vehicles for a respective blister sheet (2) and linerboard (3) which are mutually assembled.

20. The machine as claimed in claim 19, characterized in that each electrode (71) has at least one respective ejection pusher (123) retractable elastically from a defined position in which it projects on said face (113) of the respective electrode (71).

21. The machine as claimed in any one of claims 15 to 20, characterized in that the closed circuit of the electrodes (71) is circular, and in that the closed circuit of the counterelectrodes (19) is in the form of an arc of a circle coaxial to the closed circuit of the electrodes (71) along said common path (42).

22. The machine as claimed in claim 21, characterized in that the means (72, 73) for circulating the electrodes (71) in a closed circuit comprise a wheel (72) mounted rotatably about a defined axis and carrying the electrodes (71), by means (114) allowing a centripetal elastic retraction of the latter, independently of one another, in an orientation in which said face (113) of each faces in the centrifugal direction, and a motor (73) for driving the

wheel (72) in a defined direction (74) such that said common path (42) is covered from the entrance toward the exit, and in that the means (21) for circulating the counterelectrodes (19) in a closed circuit comprise an endless conveyor (21) guided in an arc of a circle coaxial to said wheel (72) about the latter and carrying the counterelectrodes (19) in an orientation such that said face (43) of each faces toward said face (113) of a respective electrode (71) along said arc of a circle, and means (75, 76) for intermeshing between said wheel (72) and said endless conveyor (71), in such a way that the motor (73) for driving the wheel (72) likewise drives the endless conveyor (21) by means of the wheel (72) and in synchronism with the latter.

23. The machine as claimed in claim 22, characterized in that it comprises means (115, 122) for bringing about a coercive centripetal retraction of the electrodes (71) in the event of a stoppage of the drive motor (73).